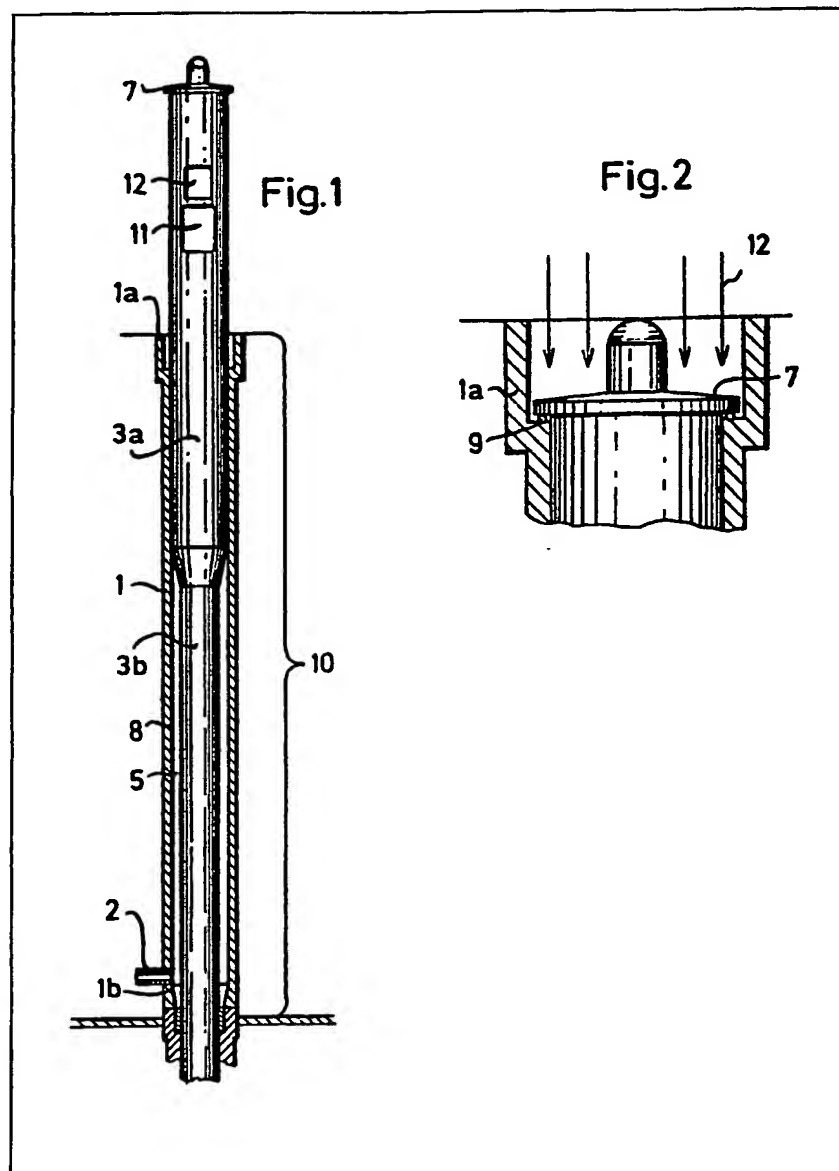


- (21) Application No. 7900274
 (22) Date of filing 4 Jan 1979
 (23) Claims filed 4 Jan 1979
 (30) Priority data
 (31) 7800786U
 (32) 12 Jan 1978
 (33) Fed. Rep of Germany (DE)
 (43) Application published
 25 Jul 1979
 (51) INT CL²
 B63B 49/00
 (52) Domestic classification
 B7A 40X CA
 (56) Documents cited
 None
 (58) Field of search
 B7A
 (71) Applicants
 Carl Zeiss-Stiftung,
 7920 Heidenheim (Brenz),
 D - 7082 Oberkochen,
 P. O. Box 1369/1380,
 Federal Republic of Ger-
 many.
 Trading as Carl Zeiss.
 (72) Inventors
 Guenther Pampus
 Rolf Traeger
 (74) Agents
 Carl Zeiss Oberkochen
 Ltd

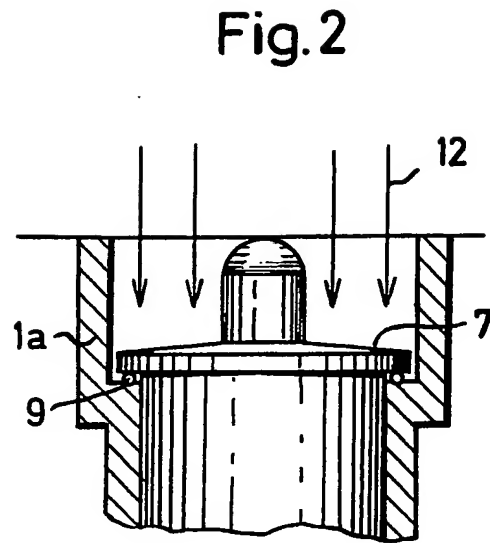
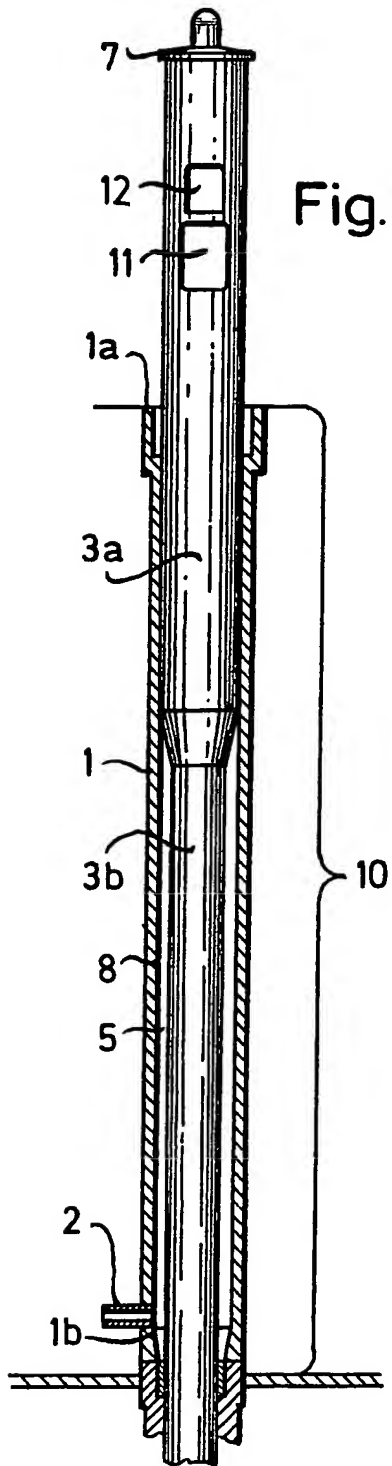
(54) Protective container for retract-
 able periscope and optronic masts

(57) For a retractably mounted peri-
 scope and optronic mast on sub-
 marines a container is described which
 is part of the pressure hull and into
 which the mast is retracted completely
 when diving. The container allows the
 viewing windows of mast to be made as

large as required without the need for
 thickening the panes when the size of
 the windows is enlarged. The container
 is provided with a seal 9 on which the
 lid 7 of the mast sits when retracted and
 with a passage 2 with a non-return
 valve through which water can be dis-
 charged on retraction.



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SPECIFICATION

Protective container for retractable periscope and optronic masts

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The present invention relates to masts for periscopes and optronic instruments on submarines, said mast being arranged retractable.

To achieve a high twilight performance and long

10 ranges for the optronic instruments the viewing windows of new periscope-and optronic masts are so large that it is most difficult to make the panes as thick as necessary to resist the high pressure exerted on the submarine and said viewing windows when

15 diving at great depths.

The object of the invention is therefore to provide a device which protects the viewing windows of periscope-and optronic masts against the high water pressure at great depths.

20 This object is achieved by providing for such periscope-and optronic masts a container in the form of a tube which is part of the submarine pressure hull, and into which said mast is retracted completely when diving. The upper section of said

25 mast rests against the inner wall of the container and moves along the wall during raising and lowering of the mast. The lower section of the mast has a smaller circumference than the upper section resulting in a circular gap between it and the inner wall. The lower

30 end of the container has at least one water outlet jet with a non-return valve and at the upper end a seal on which a lid rests hard when the mast is withdrawn.

The advantages obtained with the invention reside, in particular, in the fact that the viewing windows of the periscope and optronic masts can be made as large as required for their functions without the need for thicker panes.

One embodiment of the invention is shown by way of example in the accompanying drawing and will be described in detail below. In said drawing:

Figure 1 is a section of the new container with the periscope raised;

Figure 2 is an enlarged section of the upper end of the container shown in *Figure 1* with the periscope withdrawn.

In the embodiment of the invention shown in the drawing, container 1 is inside the submarine tower and is part of pressure hull 10 sectionally shown in

50 *Figure 1*. The optronic mast is divided into two sections 3a and 3b which have different circumferences. Upper section 3a of the mast contains window 12 for the transmission of infrared beams and window 11 for the transmission of the visible part of the spectrum. When diving, mast 3a, 3b is

55 withdrawn into container 1. Upper section 3a of the mast is guided along inner wall 8 of the container. Owing to the piston effect the water between section 3b and inner wall 8 is pressed out through jet 2.

60 When the mast is fully withdrawn, lid 7 rests tightly on jointing 9 and makes the container completely watertight. When the submarine is submerged the container is surrounded by water and pressure is exerted in direction of arrows 12. Jet 2 is fitted with a

65 non-return valve permitting water to be discharged

but not to enter.

CLAIMS

- 70 Container for masts for periscopes and optronic instruments said mast being provided with large windows for the periscope and for optronic instruments and with a lid on its upper end and being arranged retractable on a submarine characterized in
- 75 that the container has the form of a tube and is part of the submarine pressure hull that the mast is retracted completely into the container when diving, that the upper section of the mast rests against the inner wall of the container and is guided along said
- 80 wall during raising and lowering of the mast, that the lower section of the mast has a smaller circumference than the upper section resulting in a circular gap between this part of the mast and the inner wall of the container, and that the lower end of the
- 85 container is provided with at least one water outlet jet with a non-return valve and the upper end of the container carries a jointing on which said lid rests tightly when the mast is retracted.

Printed for Her Majesty's Stationery Office by Croydon Printing Company Limited, Croydon Surrey, 1978.

Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.